

SYMPATRIC OCCURRENCE OF THE WHITE-WINGED WARBLER *BRADYPTERUS*  
*CARPALIS* AND GRAUER'S RUSH WARBLER *B. GRAUERI* IN RWANDA

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Ten years ago, Chapin (1973) summarized what was then known of two large swamp dwelling warblers: the White-winged Warbler *Bradypterus carpalis* and Grauer's Rush Warbler *B. graueri*. She demonstrated, following Hall & Moreau (1970), that these two birds must be considered good species, contrary to the opinion of White (1960), who lumped them, together with *B. grandis*, the Large Rush Warbler, as a single species.

Chapin (*op. cit.*) concluded that the White-winged Warbler and Grauer's Rush Warbler occurred in Rwanda at sites separated by less than 50 miles (80 km), but situated at different altitudes. As a resident in Rwanda since 1969 I have had the opportunity to watch both species quite often, as they are common or locally common. Not only am I able to confirm Chapin's statements, but, more than that, I have found both species side by side in the Rugezi Swamps of northern Rwanda.

This discovery of sympatric occurrence prompts me to review what I have found in Rwanda and Burundi about these two little known species.

## WHITE-WINGED WARBLER

In a paper on the bird fauna of the papyrus swamps of Rwanda and Burundi I gave a detailed account of the distribution of the White-winged Warbler (Vande weghe 1981). Briefly, it can be stated that this species is an abundant resident in the extensive papyrus swamps of the Akagera Basin in central and eastern Rwanda. It occurs also at Mulindi swamp near the Uganda border and, until 1975, there was a very small population along Lake Kivu at the mouth of the Kamiranzovu river. Since that time, however, this swamp has been entirely cultivated. A few White-winged Warblers survived at least until 1976 in elephant grass *Pennisetum purpureum*, but today this population is apparently almost extinct. Generally speaking, this warbler is confined entirely to papyrus and can be considered as a good papyrus endemic. The single exception related by Chapin (1973) and my observations at the Kamiranzovu swamp in 1976 seem to be only a temporary outcome of large scale human interference.

In Rwanda, the altitudinal distribution of this warbler ranges from 1290 m up to 2050 m. It includes the very extensive swamps of the Akagera-Nyabarongo-Akanyaru system, where the total area of the papyrus can be estimated at about 50 000 or 60 000 ha. The total area suitable for this species is thus very large, despite its ecological requirements and limited geographical distribution.

## GRAUER'S RUSH WARBLER

Grauer's Rush Warbler has a much more localized distribution than *B. carpalis*. In southwest Rwanda it was collected in the Nyungwe (=Rugege) Forest (Schouteden 1969, Chapin 1973), where I found it to be abundant in the huge Upper Kamiranzovu Swamp at about 1900 to 2000 m and in numerous smaller and medium sized swamps of the eastern part of this forest between 2200 and 2600 m. In northern Rwanda I found the species to be very common in the Rugezi Swamp between 2050 and 2150 m. In the volcano area I saw it only once, in the saddle between Mts Sabyinyo and Gahinga on 16 August 1981. This was probably

the site at which it was collected by Schouteden (1966).

Generally speaking, this warbler occurs in Rwanda between 1950 and 2600 m. It inhabits a great variety of swamp vegetation types. I have seen it in short grass swamps with *Sphagnum*, *Xyris* and *Lobelia mildbreadtiana*, in swamps with medium sized sedges such as *Cyperus latifolius* or *C. denudatus*, *Juncus* and ferns, in long grass swamps with *Miscanthidium violaceum* and in swamps with dense scrubby vegetation composed of stands of *Myrica kandtiana*, *Erica kingaensis*, *Vaccinium stanleyi*, *Syzygium cordatum* and *Hypericum revolutum*. In the Nyungwe Forest I have seen it in very small isolated swamps surrounded by dense forest - this surely indicating that the species is able to penetrate forest along small watercourses. In northern Rwanda, however, it survives far from any forest remnant. In my opinion this warbler cannot be considered dependant on montane forest and thus cannot be considered as a 'forest species' as so regarded by Chapin (1932) and Prigogine (1978). Before large scale forest clearance, the central African highland swamps were usually surrounded by montane forest vegetation because of the general moist climatic conditions. The annual rainfall throughout most of this area is well over 1300 mm. True 'forest species' (*sensu* Moreau 1970) would be expected to disappear after forest clearance, but this has not happened in the case of Grauer's Rush Warbler.

The total area suitable for the species in Rwanda can be estimated at about 9000 ha. With its Kamiranzovu and Rugezi swamps, the country is thus probably the stronghold of this species. Unfortunately, the Rugezi Swamp is likely to be drained in the future and the Kamiranzovu Swamp is also the object of various development projects. One of these, however, concerns the conservation of the Nyungwe Forest, and it can be hoped that this swamp will be saved for the future.

#### HABITAT AND HABITS

The White-winged Warbler and Grauer's Rush Warbler are thus largely allopatric in Rwanda, separated mainly by altitude, but also by habitat choice. The only place where they meet is the Rugezi Swamp. This swamp is an inundated valley situated between 2050 m near its outlet and 2150 m at its headwaters. It covers an area of about 8500 ha, mostly covered with *Miscanthidium violaceum*, a tall reed. The edges are occupied by *Cyperus latifolius* stands (Deuse 1966) and near the outlet there is a large patch of papyrus. Grauer's Rush Warbler is very common in the *Miscanthidium* and in the *Cyperus latifolius*, where it is a dominant species together with Carruthers' *Cisticola Cisticola carruthersi*. As elsewhere in Rwanda, the White-winged Warbler is strictly limited to papyrus. The transition from pure papyrus to *Miscanthidium* is, however, not very clear-cut, and areas occur where patches of papyrus are mixed with other reeds. Here, both warblers are in close contact with each other and singing males are sometimes separated by only a few metres. However, I have never noted any interaction between the two species.

The White-winged Warbler is a very secretive bird. It never emerges from the closed dense papyrus stands and, when small clearings are cut in this habitat, for example to erect mist-nets, it is very reluctant to cross these rides. Most of the time this bird creeps around in the lower layers of the papyrus vegetation among the dead and rotting stems. In its movements it tends to look more like a mouse than a bird. Body and tail are often held close to the support on which the bird is creeping with small jerky movements. The song is very characteristic, produced all the year round, and is one of the most typical sounds of the papyrus swamps. It consists of a succession of loud tinkling notes, starting slowly, becoming faster and louder and then dying away as a soft trill. At very close range some snoring wingbeats can

be heard just after the song. The bird then makes a short display flight within the more open middle layer of the papyrus vegetation.

Grauer's Rush Warbler can often be seen above the vegetation, and in shrubby habitat I often saw this species sitting high up on a prominent twig. Similar to the White-winged Warbler, it probably feeds mostly in the lower strata of its habitat, but when singing it climbs up to the top of a grass or reed and after uttering its short song it makes a short display flight with snapping wings, low over the vegetation. The song is quite different from that of the White-winged Warbler. It is a much slower succession of four or five, sometimes up to ten notes, soft, unmelodious and unobtrusive. When alarmed it makes jerky movements with its tail held upright. Outside the breeding season I have found small flocks of ten or twelve birds.

#### DISCUSSION

Although Hall & Moreau (1970) consider these two warblers as good species, they regard them as closely related and forming a superspecies, together with *Bradypterus grandis* of Gabon and Cameroun. I have never seen *B. grandis*, but I see no reason to include *B. carpalis* and *B. graueri* in a single superspecies. They are obviously related, but I would have thought not more closely than with the Little Rush Warbler *Bradypterus baboecala*. Their songs are very different, as are their plumages. The White-winged Warbler is larger and, with very large feet, well adapted to papyrus, to which it is endemic. Grauer's Rush Warbler is smaller, has normal feet and is much less specialized in its habitat choice. The White-winged Warbler has twelve tail feathers, Grauer's Rush Warbler only ten. On the other hand, the song of the White-winged Warbler is very close to that of the Little Rush Warbler, being a lower pitched emission of the same stanza. Both species have twelve tail feathers. Where they are sympatric, they are separated by size, and especially by habitat choice, but where the White-winged Warbler is absent the Little Rush Warbler also inhabits papyrus (Vande weghe 1981). The foot/wing-length ratio of the Little Rush Warbler is intermediate between that of the White-winged Warbler and that of Grauer's Rush Warbler.

The Little Rush Warbler and Grauer's Rush Warbler also share common attributes. The plumage of both species is very similar and they share a common type of habitat, being much more adaptable than the White-winged Warbler. In Rwanda they are mostly separated by altitude, but there are good indications that both species are in competition, or at least able to replace one another. In areas where Grauer's Rush Warbler occurs, I have never found the Little Rush Warbler above 2000 or 2100 m. At the Kamiranzovu Swamp, in the Nyungwe Forest at 1950 m, the Little Rush Warbler is completely absent, and at the Rugezi Swamp I found this species only sporadically along the edges of the lowest parts of the swamp. Where Grauer's Rush Warbler is absent, however, I found the Little Rush Warbler, up to 2500 m. Prigogine (1971) also found it up to 2600 m in the swamps of the Itombwe Highlands of eastern Zaire, where Grauer's Rush Warbler does not occur.

On the whole I consider the White-winged Warbler, the Little Rush Warbler and Grauer's Rush Warbler as forming a set of three independent but closely related species. The Little Rush Warbler is the smallest of the three, the most adaptable in the choice of its habitat and has the most extensive geographical distribution. It seems to be able to replace ecologically the two other species, which are much more specialized (one altitudinally, the other with respect to habitat choice) and which have very restricted geographical distributions.

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